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File: DWPI

Mar 29, 2006

DERWENT-ACC-NO: 1996-500665

DERWENT-WEEK: 200622

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TITLE: Guide wire for catheter for inserting into blood vessel, etc. - has central part with wider end or coiled end coated with plastic contg. radiopaque material etc.

PRIORITY-DATA: 1995JP-0090182 (March 23, 1995)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> JP 3761216 B2	March 29, 2006		008	A61M025/01
<input type="checkbox"/> JP 08257136 A	October 8, 1996		005	A61M025/01

INT-CL (IPC): A61 M 25/01

ABSTRACTED-PUB-NO: JP 08257136A

BASIC-ABSTRACT:

Guide wire (10) has a longitudinal central core (11) having a predetermined length, with a wider tip (11a) or coiled part at one end. A first plastic film (12) which is provided only at the tip has a high concn. of radiopaque material. A second plastic film (13) with low concn. is coated on the whole of the central core.

The radiopaque material is tungsten powder, barium sulphate, gold and/or platinum etc.

USE/ADVANTAGE - The guide wire is used for inserting a catheter into a blood vessel, ureter, trachea etc. The wire has a smooth surface.

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L1: Entry 1 of 2

File: JPAB

Oct 8, 1996

PUB-NO: JP408257136A

DOCUMENT-IDENTIFIER: JP 08257136 A

TITLE: MEDICAL GUIDE WIRE AND MANUFACTURE THEREOF

PUBN-DATE: October 8, 1996

INVENTOR-INFORMATION:

NAME

COUNTRY

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INT-CL (IPC): A61 M 25/01

ABSTRACT:

PURPOSE: To provide a medical guide wire which enables selecting of the color of products freely without impairing a characteristic such as smoothness or the like of the surface thereof with excellence in radiation shielding of a tip part, and a manufacturing method thereof.

CONSTITUTION: A tip part 11a of a core wire 11 is formed slender by a specified length while a diameter-expanded part 11b is formed at the tipmost part thereof or a coil mounted. A synthetic resin liquid containing a radiation shield material at a high concentration is applied on the tip part 11a of the core wire 11 by dipping the tip thereinto to form a first synthetic resin film 12. Moreover, the whole of the core wire 11 having the first synthetic resin film 12 formed thereon is covered with a synthetic resin film 13 containing no radiation shield material or containing the material at a lower concentration than the first synthetic resin film 12 to produce a guide wire 10. The radiation shield material herein used is preferably one, two or more selected from powders of tungsten, bismuth, barium sulfate, gold and platinum.

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Translated: 00:50:19 JST 06/21/2006

Dictionary: Last updated 06/16/2006 / Priority:

CLAIMS

[Claim(s)]

[Claim 1] a tip part -- predetermined length -- in the guide wire for Medical Science Division equipped with **** formed thinly and the synthetic resin film which covers the perimeter of this **** The diameter of the latest part of said **** is expanded, or the latest part of said **** is equipped with the coil. The 1st synthetic resin film which includes radiopacity material in high concentration is prepared in the perimeter of said diameter expansion part of said ****, or said coil applied part. The guide wire for Medical Science Division characterized by covering further the perimeter of said **** and said 1st synthetic resin film with the 2nd synthetic resin film included in low concentration from said 1st synthetic resin film excluding radiopacity material.

[Claim 2] The guide wire for Medical Science Division according to claim 1 said whose radiopacity material is a kind chosen from the powder of tungsten, bismuth, barium sulfate, gold, and platinum, or two sorts or more.

[Claim 3] The content of the radiopacity material in said 1st synthetic resin film is 40-200. Guide wire for Medical Science Division according to claim 1 or 2 whose content of said radiopacity material in said 2nd synthetic resin film it is weight % and is 0 to 50 weight %.

[Claim 4] a tip part -- predetermined length -- [process / which fuses and expands the diameter of the latest part of **** formed thinly, or equips the latest part of said **** with a coil] The process which immerses the tip part of said **** into the synthetic resin liquid which includes radiopacity material in high concentration, and prepares the 1st synthetic resin film, The manufacturing process of the guide wire for Medical Science Division characterized by including the process which covers the whole perimeter of said **** with the 2nd synthetic resin film included in low concentration from said 1st synthetic resin film excluding radiopacity material.

[Claim 5] The manufacturing process of the guide wire for Medical Science Division according to claim 4 said whose radiopacity material is a kind chosen from the powder of tungsten,

bismuth, barium sulfate, gold, and platinum, or two sorts or more.

[Claim 6] The content of the radiopacity material in said 1st synthetic resin film is 40-200.

Manufacturing process of the guide wire for Medical Science Division according to claim 4 or 5 whose content of said radiopacity material in said 2nd synthetic resin film it is weight % and is 0 to 50 weight %.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the guide wire for Medical Science Division used when inserting a catheter in a blood vessel, a ureter, a bile duct, a tracheal gill, etc., for example, and its manufacturing process.

[0002]

[Description of the Prior Art] Inserting a catheter, prescribing medicines, such as contrast media, for the patient, or extracting some organizations with forceps etc. through a catheter is performed in recent years for the inspection and medical treatment in the tubular organ of human bodies, such as a blood vessel, a ureter, a bile duct, and a tracheal gill. After inserting a first comparatively thin and flexible guide wire and inserting a catheter along with the perimeter of this guide wire into a tubular organ on the occasion of insertion of a catheter, he is trying to extract a guide wire.

[0003] Since it carries out checking the position by radiation fluoroscopy of X-rays etc. when inserting a guide wire in the inside of the body, as for a guide wire, it is desirable that the tip part is radiopacity at least.

[0004] There were some which are shown, for example in drawing 7 conventionally as a guide wire which has radiopacity. this guide wire 40 -- the tip part 11a -- predetermined length -- it consists of **** 11 formed thinly and a synthetic resin film 42 containing the radiopacity material which covers the whole perimeter of this **** 11. The synthetic resin film 42 carries out extrusion molding of what kneaded radiopacity material, such as tungsten, bismuth, and barium sulfate, to a synthetic resin pellet, and is formed in the perimeter of **** 11.

[0005]

[Problem to be solved by the invention] However, in order that such radiopacity material might raise radiopacity, when high concentration was made to contain, and the Taira slippage of a synthetic resin film was spoiled and it covered on the whole perimeter of ****, there was a problem that the slide characteristic over a catheter needed as a guide wire fell.

[0006] Moreover, [radiopacity of barium sulfate is not so good among such radiopacity material, and since dispersibility of bismuth is bad and cannot knead it easily uniformly to synthetic resins, such as polyurethane, many tungsten is used, but] When tungsten was

mixed to the synthetic resin, the whole resin became black and there was a problem of it becoming impossible to color it the color of a request of resin.

[0007] It is in offering the guide wire for Medical Science Division which can choose a product color freely, without having made this invention in view of the above-mentioned problem, and the purpose's being excellent in the radiopacity of a tip part, and spoiling the resin characteristics, such as the surface Taira slippage.

[0008]

[Means for solving problem] In order to attain the above-mentioned purpose, [the guide wire for Medical Science Division of this invention] a tip part -- predetermined length -- in the guide wire for Medical Science Division equipped with **** formed thinly and the synthetic resin film which covers the perimeter of this **** The diameter of the latest part of said **** is expanded, or the latest part of said **** is equipped with the coil. The 1st synthetic resin film which includes radiopacity material in high concentration is prepared in the perimeter of said diameter expansion part of said ****, or said coil applied part. The perimeter of said **** and said 1st synthetic resin film is characterized by being further covered with the 2nd synthetic resin film included in low concentration from said 1st synthetic resin film excluding radiopacity material.

[0009] [moreover, the manufacturing process of the guide wire for Medical Science Division of this invention] a tip part -- predetermined length -- [process / which fuses and expands the diameter of the latest part of **** formed thinly, or equips the latest part of said **** with a coil] The process which immerses the tip part of said **** into the synthetic resin liquid which includes radiopacity material in high concentration, and prepares the 1st synthetic resin film, It is characterized by including the process which covers the whole perimeter of said **** with the 2nd synthetic resin film included in low concentration from said 1st synthetic resin film excluding radiopacity material.

[0010] In addition, in this invention, it is desirable that said radiopacity material is a kind chosen from the powder of tungsten, bismuth, barium sulfate, gold, and platinum or two sorts or more.

[0011] Moreover, the content of the radiopacity material in said 1st synthetic resin film is 40-200. It is weight % and it is desirable that the content of said radiopacity material in said 2nd synthetic resin film is 0 to 50 weight %.

[0012]

[Function] Since the diameter of the latest part of **** is expanded or the latest part of **** is equipped with the coil in the guide wire for Medical Science Division of this invention Since the radiopacity of the **** in that portion itself is increasing and the 1st synthetic resin film which includes radiopacity material in high concentration at the perimeter of this diameter expansion part or a coil applied part is prepared further Especially when inserting in the inside of the body, while excelling in the radiopacity of the tip part of a guide wire for which a position check

is needed, having a bad influence on the visibility when prescribing contrast media for the patient compared with the case where the whole guide wire has radiopacity decreases.

[0013] Moreover, since the perimeter of **** and the 1st synthetic resin film is further covered with the 2nd synthetic resin film included in low concentration from the 1st synthetic resin film excluding radiopacity material Even when tungsten etc. is used as a radiopacity material of the 1st synthetic resin film, without spoiling the Taira slippage on the surface of a guide wire, a product color can be freely chosen with the 2nd synthetic resin film. Furthermore, since the perimeter of the 1st synthetic resin film is covered with the 2nd synthetic resin film, it can make quite high concentration of the radiopacity material of the 1st synthetic resin film, therefore can raise radiopacity more.

[0014] [according to the manufacturing process of the guide wire for Medical Science Division of this invention / expand / the diameter of the latest part of **** / fuse and] on the other hand Or by immersing the tip part of **** into the synthetic resin liquid which includes radiopacity material in high concentration, after equipping the latest part of **** with a coil The 1st synthetic resin film which the above-mentioned synthetic resin liquid adheres to the tip outside circumference of **** easily, and includes radiopacity material in high concentration can be made to adhere thickly, and it can raise the radiopacity in the tip part of a guide wire.

[0015]

[Working example] One example of the guide wire for Medical Science Division of this invention is shown in drawing 1 . this guide wire 10 -- the tip part 11a -- predetermined length -- [**** / 11 / by which it was thinly formed and the diameter expansion part 11b was formed in the latest part] The 1st synthetic resin film 12 which was prepared in the perimeter of the portion which adjoins the diameter expansion part 11b of the tip part 11a of **** 11 and which includes radiopacity material in high concentration, It consists of the 2nd synthetic resin film 13 which was covered by the perimeter of **** 11 and the 1st synthetic resin film 12 and which is included in low concentration from the 1st synthetic resin film 12 excluding radiopacity material.

[0016] As **** 11, elastic metal material, such as stainless steel, a shape memory alloy, and piano wire, is used preferably, for example. Moreover, **** 11 makes what [not only] consists of one wire but two or more small-gage wires gather, and may consist of reliance lines. The diameter by the side of the base of **** 11 is 100-600. mum grade is desirable and the whole length of about 30-3000mm is desirable, The length of the tip part 11a has a desirable 5 - 600 mm grade, and the diameter of the diameter expansion part 11b is 150-300. mum is desirable. In this example, the diameter by the side of the base of **** 11 is 400. The length of mum and the whole is 1500mm, The diameter of 150 mm and the diameter expansion part 11b of the length of the tip part 11a is 200. It is referred to as mum.

[0017] As a method of forming the diameter expansion part 11b, methods, such as carrying out

melting of the latest part of the tip part 11a of **** 11 using plasma, a welding machine, etc., and rounding, are adopted, for example so that it may mention later.

[0018] The 1st synthetic resin film 12 to which the perimeter of the tip part 11a of **** 11 adheres consists of a synthetic resin which includes radiopacity material in high concentration. As such resin, what kneaded the powder of radiopacity material to high concentration is used for the chip of various kinds of resin, such as polyurethane resin, silicone resin, a fluoro-resin, polyamide resin, polyethylene resin, a shape-memory resin, and hydrophilic resin.

[0019] It is desirable to use a kind chosen from powder, such as tungsten, bismuth, barium sulfate, gold, and platinum, or two sorts or more as a radiopacity material. In addition, as for the particle size of such powder, about 0.5-10 micrometers is desirable. Moreover, the content of the radiopacity material of the 1st synthetic resin film 12 is 40-200. It is desirable to consider it as weight %. When the content of radiopacity material is less than 40 weight %, the radiopacity by radiation fluoroscopy of X-rays etc. is not enough, and it is 200. If weight % is exceeded, since kneading and fabrication will become difficult, it is not desirable. In addition, in this example, what kneaded the powder of tungsten 60weight % to polyurethane resin was used.

[0020] The 2nd synthetic resin film 13 covered on the perimeter of **** 11 and the 1st synthetic resin film 12 consists of a synthetic resin included in low concentration from the 1st synthetic resin film 12 excluding radiopacity material. The polyurethane resin same with the ability to use for the 1st synthetic resin film 12 as such resin, Various kinds of resin's, such as silicone resin's, a fluoro-resin's, polyamide resin's, polyethylene resin's, a shape-memory resin's, and hydrophilic resin's, being used for the 1st synthetic resin film 12 at remaining as it is or these resin and the thing which kneaded the same radiopacity material to low concentration are used.

[0021] As for the content of the radiopacity material of the 2nd synthetic resin film 13, it is desirable to consider it as 0 to 50 weight %. When the content of radiopacity material exceeded 50 weight %, the resin characteristics, such as the Taira slippage, worsen and tungsten etc. is used as a radiopacity material, since coloring becomes impossible in the color considered as a request, it is not desirable. In addition, in this example, polyurethane resin was used as it was, without kneading radiopacity material.

[0022] [resin / the film / the 2nd synthetic resin film 13 coats the perimeter of **** 11 and the 1st synthetic resin film 12 with resin, or], for example Heat contraction of the tube of resin can be put and carried out to the perimeter of **** 11 and the 1st synthetic resin film 12, or it can form by the method which has ****ed [the method] molding to **** 11 and one to which the 1st synthetic resin film 12 was made to adhere beforehand enough, and is made into them. The thickness of the 2nd synthetic resin film 13 is usually 10-500, although what is necessary is just to set up suitably in the range of a grade which does not have a bad influence on the

pliability of **** 11. mum is desirable. In addition, as for the tip of the 2nd synthetic resin film 13, it is desirable to form round so that an organization may not be wounded, when inserting in a tubular organ.

[0023] Moreover, in the surface of the 2nd synthetic resin film 13, you may cover hydrophilic polymer further. As such hydrophilic polymer, it is JP,4-14991,B, for example. Resin which was indicated by the number is mentioned.

[0024] Since this guide wire 10 is covered by the 2nd synthetic resin film 13 included in low concentration excluding radiopacity material, the Taira slippage over a catheter etc. is not spoiled. Moreover, even if it uses the powder of tungsten as a radiopacity material of the 1st synthetic resin film 12, since the 1st synthetic resin film 12 is covered with the 2nd synthetic resin film 13, it can be colored a desired color. When this guide wire 10 was inserted into the blood vessel, that tip position was able to be enough checked by radiation fluoroscopy of X-rays etc.

[0025] One example of the manufacturing process of the guide wire for Medical Science Division of this invention is shown in drawing 2 -6. Drawing 2 is the tip part of **** before expanding the diameter of the latest part a shown fragmentary sectional view, and [drawing 3] Are the tip part of **** which expanded the diameter of the latest part the shown fragmentary sectional view, and [drawing 4] Are the state where the tip part of **** is immersed into the synthetic resin liquid which includes radiopacity material in high concentration the shown explanatory view, and [drawing 5] Are the state where the 1st synthetic resin film which includes radiopacity material in the portion which adjoins the diameter expansion part of the tip part of **** at high concentration was prepared the shown fragmentary sectional view, and [drawing 6] It is the fragmentary sectional view showing the state where the 2nd synthetic resin film included in the perimeter of **** and the 1st synthetic resin film from the 1st synthetic resin film at low concentration excluding radiopacity material was covered.

[0026] first, the tip part 11a as shown in drawing 2 -- predetermined length -- the latest part of **** 11 fabricated thinly is fused, for example with a plasma arc, and is rounded, and as shown in drawing 3 , the diameter expansion part 11b is formed.

[0027] Subsequently, as are shown in drawing 4 , and the tip part 11a of **** 11 is immersed into the 1st synthetic resin liquid 12a which includes radiopacity material in high concentration, it adheres, the 1st synthetic resin liquid 12a is solidified and it is shown in drawing 5 The 1st synthetic resin film 12 is formed in the portion which adjoins the diameter expansion part 11b of the tip part 11a of **** 11.

[0028] Then, as shown in drawing 6 , excluding radiopacity material, from the 1st synthetic resin film 12, the 2nd synthetic resin film 13 included in low concentration is covered with methods, such as extrusion fabrication, on the perimeter of **** 11 in which the 1st synthetic resin film 12 was formed, and the guide wire 10 of this invention is manufactured on it.

[0029] Other examples of the guide wire for Medical Science Division of this invention are shown in drawing 8 . In addition, a same sign will be substantially given to the same portion with the example shown in drawing 1 , and the explanation will be omitted.

[0030] this guide wire 20 -- the tip part 11a -- predetermined length -- [**** / 11 / which was formed thinly] The coil 21 which adhered to the tip part 11a of **** 11 with means, such as soldering, The 1st synthetic resin film 12 which includes in high concentration the radiopacity material prepared so that this coil 21 might be covered, It consists of the 2nd synthetic resin film 13 which was covered by the perimeter of **** 11 and the 1st synthetic resin film 12 and which is included in low concentration from the 1st synthetic resin film 12 excluding radiopacity material.

[0031] What has the quality of the material [be / the same as that of the example shown in drawing 1 / it] of **** 11, the 1st synthetic resin film 12, and the 2nd synthetic resin film 13 is used. You may be stainless steel etc. although the radiopacity material which consists of gold, platinum, those alloys, etc. is preferably used as a coil 21.

[0032] After this guide wire 20 adheres a coil 21 to the tip part 11a of **** 11 by soldering etc., The portion to which the coil 21 of the tip part 11a of **** 11 adhered is immersed into the 1st synthetic resin liquid which includes radiopacity material in high concentration. Adhere, solidify the 1st synthetic resin liquid and the 1st synthetic resin film 12 is formed. Furthermore, the 2nd synthetic resin film 13 included in the perimeter of **** 11 in which the 1st synthetic resin film 12 was formed, from the 1st synthetic resin film 12 at low concentration excluding radiopacity material can be manufactured by covering with methods, such as extrusion fabrication. In this case, by forming the coil 21 in the tip part 11a of **** 11, adhesion of the 1st synthetic resin liquid is made good, and the 1st synthetic resin film 12 can be formed thickly.

[0033]

[Effect of the Invention] [according to this invention / make / the diameter of the latest part of **** / to expand] as explained above Or equip the latest part of **** with a coil, and the 1st synthetic resin film which includes radiopacity material in the diameter expansion part or a coil applied part at high concentration is prepared. Furthermore, since the whole was covered with the 2nd synthetic resin film included in low concentration from the 1st synthetic resin film excluding radiopacity material, it excels in the radiopacity of the tip part of a guide wire, and the characteristics, such as the surface Taira slippage, are not spoiled, and a product color can be made into a desired color.

[Translation done.]

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Dictionary: Last updated 06/16/2006 / Priority:

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view showing one example of the guide wire for Medical Science Division of this invention.

[Drawing 2] It is the fragmentary sectional view showing the tip part of **** before expanding the diameter of the latest part in one example of the manufacturing process of the guide wire for Medical Science Division of this invention.

[Drawing 3] It is the fragmentary sectional view showing the tip part of **** which expanded the diameter of the latest part in this example.

[Drawing 4] It is the explanatory view showing the state where the tip part of **** is immersed in this example into the synthetic resin liquid which includes radiopacity material in high concentration.

[Drawing 5] It is the fragmentary sectional view showing the state where the 1st synthetic resin film which includes radiopacity material in the portion which adjoins the diameter expansion part of the tip part of **** in this example at high concentration was prepared.

[Drawing 6] It is the fragmentary sectional view showing the state where the 2nd synthetic resin film included in the perimeter of **** and the 1st synthetic resin film from the 1st synthetic resin film in this example at low concentration excluding radiopacity material was covered.

[Drawing 7] It is the sectional view showing an example of the conventional guide wire for Medical Science Division.

[Drawing 8] It is the sectional view showing other examples of the guide wire for Medical Science Division of this invention.

[Explanations of letters or numerals]

10, 20 Guide wire

11 ****

11a Tip part

11b Diameter expansion part

12 1st Synthetic Resin Film

13 2nd Synthetic Resin Film

21 Coil

[Translation done.]